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**Jonathan D Farley\*** ([farley@math.vanderbilt.edu](mailto:farley@math.vanderbilt.edu)), Mathematics Department, Vanderbilt University, Nashville, TN 37240. *Unities and Double Negation: Some Problems from "Mathematical Essays in Honor of Gian-Carlo Rota"*.

Given a finite lattice  $L$  with unity of irreducibles  $I$ , the *dual* of  $L$ ,  $L^*$ , is the completion of the negation of the unity  $I$ . The finite lattices  $L$  that are isomorphic to their double-duals ( $L^{**}$ ) are characterized. It is shown that  $L^{**}$  need not be embeddable in  $L$ ; indeed,  $L^{**}$  need not even be in the variety generated by  $L$ . The problems of Crapo and Le Conte de Poly-Barbut from *Mathematical Essays in Honor of Gian-Carlo Rota* are thus solved. (Erné and Deiters, unbeknownst to the author, to Crapo and Le Conte de Poly-Barbut, and to themselves, have obtained results that also settle these problems.) (Received October 03, 2000)